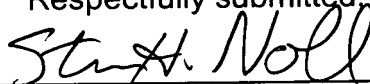


Applicant submits that this application is in proper condition for examination in the United States National Examination Stage, which action is respectfully requested.

Respectfully submitted,



Steven H. Noll (Reg. No. 28,982)

SCHIFF HARDIN & WAITE
Patent Department
6600 Sears Tower
233 South Wacker Drive
Chicago, IL 60606
Telephone (312) 258-5790
Attorneys for Applicant

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~~{Siemens AG~~

~~New PCT application~~

~~26965-0769~~

~~GR-98-P-2176-US~~

~~Inventor: Tasto~~

~~METHOD, DEVICE}~~ [Substitute Specification:

-- METHOD]AND SYSTEM FOR OPERATING [A] MOBILE
TELECOMMUNICATION ~~{TERMINALS}~~ [TERMINAL] IN A ~~{PUBLIC,}~~ CELLULAR
MOBILE RADIO NETWORK

[BACKGROUND OF THE INVENTION]

Field of the Invention

The present invention generally pertains to mobile telecommunications terminals. In particular, the present invention pertains to mobile telecommunications terminals in public]~~{The invention relates to a method, a device and a system for operating mobile telecommunication terminals in a public,}~~ cellular mobile radio ~~{network comprising at least one base transmitting-receiving station and one mobile station, particularly a mobile telephone according to the preamble of patent claim 1, 5 or 6.}~~ [networks.]

~~{Wireless}~~ [Discussion of the Related Art

Using wireless] communication terminals, ~~{i.e.,}~~ [such as] mobile radio transmission/reception devices, ~~{which are used as terminals, are known. Wireless}~~ [as telecommunications terminals is known. Some types of common wireless communications terminals include, wireless] telephones, mobile telephones,

satellite radio telephones, **[and]** trunk radio telephones ~~{etc. are only cited as examples here}~~.

Furthermore, it is known to operate such telecommunication devices or terminals within international mobile radio networks according to **[various standards, such as]** the GSM standard (Global System for Mobile ~~{Communication}~~) **[communication]**, for example.

Telephone users have communication possibilities in such mobile radio networks~~{,}~~ and data services~~[,]~~ and further services can be performed via the network. Known public mobile radio networks can be connected together with further networks such as the public telephone network or~~{, respectively, the}~~ **[an]** ISDN network, ~~{and also}~~ **[as well as]** with local, line-bound networks. Moreover, connections from and to other public mobile radio networks are supported as well.

The GSM mobile radio network is a mobile communication system, which is cellularly composed of a great number of radio units, ~~{whereby}~~ **[wherein]** each radio cell is operated by a base transmitting-receiving station, which ~~{respectively sets}~~ **[set]** up connections to the mobile stations of the subscribers via corresponding air interfaces.

The base transmitting-receiving stations are normally operated by a what is referred to as base drive. A plurality of base drives are connected to a mobile switching center, which assumes the required switching-oriented functions in a fixed coverage area in the radio network.

The increase in the use of wireless telecommunication ~~{offers by possession and use of}~~ **[offered by]** mobile stations leads to dangers at locations where low transmission performances in critical frequency areas can ~~{already}~~ cause

interferences ~~{of}~~ **[with]** sensitive electronic devices. For example, ~~{this is the case}~~ when a mobile station is used without authority, such as ~~{the use of a mobile telephone in civil planes}~~ **[on an airliner]**. The same dangers are present when mobile telephones or mobile telecommunication terminals are used, for example, in hospitals or close to explosion-endangered spaces~~[,]~~ such as gas stations. {

}The intended or unintended use of mobile telephones in public areas such as ~~{theaters,}~~ **[restaurants,]** movie theaters ~~{or suchlike}~~**[, and such,]** is also ~~{experienced as}~~ disturbing.

Therefore, the **[present]** invention ~~{is based on the object of proposing}~~ **[provides]** a method~~{, a device}~~ and ~~{a}~~ system for operating mobile telecommunication terminals in a public, cellular mobile radio network ~~{with}~~ **[involving the use of]** at least one base transmitting-receiving station and **[at least]** one mobile station~~{, particularly a mobile telephone, which makes it possible to assure}~~**[. The present invention assures]** that mobile telephones or~~{, respectively,}~~ mobile telecommunication terminals are switched off or deactivated in ~~{particularly security-relevant areas with regard to}~~ **[particular areas when there is concern for]** electromagnetic compatibility ~~{or in other endangered areas, so that interfering high-frequency transmission performance is not emitted.}~~**[, or in areas where there is the possibility of high-frequency interference.]**

~~{The object is achieved by a method according to the definition of patent claim 1, by a device as it is defined according to the subject matter of patent claim 5,~~

~~and/or by a}~~ **[SUMMARY OF THE INVENTION]**

Accordingly, it is an object of the present invention to provide a method and] system for operating mobile ~~{telecommunication terminals according to the features of patent claim 6, whereby the subclaims represent at least expedient embodiments and further developments of the invention.}~~ [telecommunications terminals in a public cellular mobile radio network.]

~~{The basic inventive idea with respect to the method is to fashion a mobile telephone such that it logs off from the respective}~~ **[It is another object of the invention to provide method and system for operating mobile telecommunications terminals involving a pico-cell.**

It is a further object of the invention to provide a method and system for deactivating mobile telecommunications terminals in areas where there is concern for electromagnetic compatibility.

BRIEF DESCRIPTION OF THE DRAWING

Figure 1 shows a pico-cell arranged in accordance with the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

The basic method according to the present invention causes a mobile telephone to log off from an] adjacent base transmitting-receiving station and ~~{goes into the inactive state when receiving a respectively}~~ [go into an inactive state when the mobile telephone receives a]specified first message ~~{of}~~ [from] a locally emitting transmitter of a small capacity[, such as a pico-cell transmitter].

The mobile telephone can be automatically reactivated and can log into the network when receiving a second message from the locally emitting transmitter. The network login and logoff ~~{ensues}~~ **[is conducted]** in the framework of a standard protocol exchange with the ~~{respective}~~ adjacent base transmitting-receiving station.

It is also possible with respect to the method to manually activate the mobile station and to log into the network when a second message is not present when the transmission area of the locally emitting transmitter is left ~~{, whereby a}~~ **[. A]** transition into the active modus or into the standby modus can also be automatically provided when the specified message is not received or is no longer received over a prescribable time interval.

~~{The reception}~~ **[Reception]** of the specified messages can be optically and/or acoustically signalized to the user of the mobile telephone, ~~{whereby}~~ **[wherein]** it is also conceivable to display the message content or the message parameters at the mobile telephone display.

~~{The optical}~~ **[Optical]** and/or acoustic signalization calls the attention of the mobile radio telephone user to the ~~{effect}~~ **[fact]** that he ~~{enters}~~ **[has entered]** an endangered area~~[,]~~ and to the effect that his mobile telephone will soon pass over into the inactive state. ~~{It is inventively assured that as}~~ **[As]** long as the mobile radio telephone user is situated with his mobile telephone in the transmission range of the transmitter of a small capacity and a disabling code is sent and received he is not capable of deliberately operating the telephone again, with the consequence of interfering high-frequency radiation.

In less critical areas, the mobile station need not be completely deactivated but can be kept in ~~{the}~~ **[an]** idle mode, ~~{whereby}~~ **[wherein]**, after the transmission

range has been left, an automatic transition into the standby modus occurs upon ~~{employment}~~ **[use]** of ~~{the}~~ conventional ~~{mechanisms and}~~ processes ~~{for the mobility administration}~~ without ~~{the}~~ user of the mobile station having to input data or commands.

The ~~{inventive}~~ **[method of the present invention can be carried out via a]** device for operating mobile telecommunication terminals in a public, cellular mobile radio network with at least one base transmitting-receiving station and one mobile station~~{, particularly}~~**[. In particular, the mobile station can be]** a mobile telephone with a transmitter-receiver assembly, a micro controller, a current supply unit and input assemblies and output assemblies proceeds from a so developed transmitter-receiver assembly, which comprises a pico~~[-]~~cell radio device for receiving and evaluating specified messages. The pico~~[-]~~cell radio device ~~{leads}~~ **[sends]** the received specified messages onto the micro controller in order to ~~{initiate}~~ **[cause]** it to transmit a network logoff signal via the transmitter-receiver assembly and to deactivate or, ~~{respectively,}~~ switch off the current supply unit of the mobile telephone, ~~{whereby}~~ **[while]** the pico~~[-]~~cell radio device remains active.

In addition to the actual transmitter-receiver assembly, i.e., the operating radio system for the mobile communication, each mobile telecommunication terminal ~~{therefore inventively}~~ contains a second low-power radio system, particularly a receiving system for the communication over a small distance, ~~{i.e., in the framework of a what}~~ **[which]** is referred to as pico~~[-]~~cell.

A counter-station, ~~{i.e.,}~~ **[that is]** a pico~~[-]~~cell transmitter fixed station~~[,]~~ is situated~~{, for example,}~~ at airplane ~~{entries, at entries of}~~ **[doorways, at entrances to]** hospitals etc.~~[,]~~ and sends the specified messages.

As soon as the pico[-]cell radio device of the ~~{respective}~~ mobile station comes close to a pico[-]cell transmitter fixed station, ~~{namely}~~ such that an error-free data exchange becomes possible, the fixed station informs the mobile telecommunication terminal via the pico[-]cell by means of a separate code~~{, i.e., informs the messages,}~~ that the mobile telephone must be deactivated.

Subsequently, the mobile telephone switches off the cellular radio system, ~~{whereby}~~ **[although]** the pico[-]cell radio device remains active. In this way, the pico[-]cell radio device is capable of receiving a further message or code sent by the fixed station ~~{in order to effect a reactivation.}~~ **[.]**

~~{In an embodiment of the invention, a DECT system or blue-tooth system}~~ **[A DECT (Digital European Cordless Telecommunications) system or Blue-Tooth system (standardized data synchronization)]**, which is already integrated into the mobile telephone or which ~~{is additionally arranged, is}~~ **[may be incorporated later, can be]** used for a pico[-]cell radio system. For example, a DECT radio part can be used for what are referred to as dual mode mobile telephones DECT-GSM. ~~{The}~~ **[Therefore, the]** pico[-]cell radio system ~~{therefore is not or}~~ is not only used for forwarding user data~~[,]~~ but also **[be used]** for remotely controlling mobile radio device functions independently of actions of the user or, ~~{respectively,}~~ has such a function in addition.

Due to the signaling of the network login in connection with a call by the pico[-]cell transmitter fixed station, ~~{it}~~ **[the callers]** can be ~~{signalized to the callers}~~ **[informed]** that a connection cannot be set up at the moment due to a specific location where the mobile radio network user is. It is possible ~~{here, in a way known per se,}~~ to switch to a call forwarding or a call memory. ~~{An IMSI}~~ **[IMSI]**

~~(International Mobile Subscriber Identity))~~ detach information is normally transmitted to the network or ~~{, respectively, the respective}~~ base transmitting-receiving station prior to the deactivation the respective mobile station ~~{, for example}~~ in the framework of a GSM mobile radio network.

~~{{sic}}~~ **[An exemplary embodiment of the present invention will now be discussed with reference to Figure 1.]**

~~{The invention is subsequently explained in greater detail on the basis of an exemplary embodiment and upon reference to a Figure.~~

~~The Figure-)~~ **[Figure 1]** shows a basic arrangement of a pico[-]cell fixed station in the area of the door opening of an airplane.

A pico[-]cell transmitter fixed station PS, which is capable of transmitting specified messages of small capacity ~~{, i.e., locally, is arranged at}~~ **[is shown in Figure 1. The fixed station PS is a locally emitting transmitter of small capacity. The fixed station PS is situated on]** the airplane body F in immediate proximity ~~{of a}~~ **[to the]** door opening.

If a mobile telephone MT reaches the radiation range of the fixed station PS ~~{for example}~~, **[such as]** when a user enters the airplane via the door opening FT[,]
the pico[-]cell radio device FS in the mobile telephone MT receives ~~{the}~~ **[a]** corresponding message.

After this message has been received, the mobile telephone MT logs off from a base transmitting-receiving station (not shown) and the mobile station is completely deactivated subsequent to the network logoff.

Instead of a complete deactivation of the mobile part, ~~it can also be merely initiated that it is~~ **[the present invention makes it]** no longer possible to access the respective radio cell via a corresponding transmitter-receiver assembly in the mobile telephone MT ~~and, on the other hand, that the pico~~. **However, the pico-**cell radio device FS in the mobile telephone MT remains receive ready. [

]In ~~this~~ **[the]** embodiment **[shown in Figure 1]**, the mobile telephone is activated again and logged into the network ~~in that~~ **[when]** a second message is transmitted ~~on the part of~~ **[by]** the locally emitting transmitter, i.e., the pico-~~cell~~ transmitter fixed station PS. The messages to be transmitted are symbolized by the reference letter C, ~~whereby~~ **[wherein]** the transmission path is represented by arrows.

It is certainly possible ~~with respect to the exemplary embodiment~~ to manually reactivate the mobile telephone MT and to log into the network after the transmission range of the locally emitting transmitter or ~~respectively,~~ of the pico-~~cell~~ transmitter fixed station PS has been ~~left~~ **[exceeded]**.

The entering into the transmission range of the fixed station FS is preferably optically and/or acoustically ~~signalized~~ **[indicated]** to the user of the mobile telephone MT.

As a result of the described exemplary embodiment **[shown in Figure 1]**, it is possible to assure that mobile telephones cannot be intentionally or unintentionally used in particularly security-relevant or endangered areas. In this way, interferences of sensitive electronic devices, for example ~~in civil planes or suchlike~~ **[on airplanes]**, can be avoided. ~~A call~~ **[Call]** blocking, which can be automatically cancelled when the area is left, can also be externally imposed or enforced onto the

mobile telephone in particularly relevant areas[,] and also at locations where interferences are undesired.

Optical and/or acoustic signaling measures ~~{that are known per se are used upon utilization of the corresponding assemblies of the mobile telephone in order to indicate the}~~ **[can be used to indicate that the user is]** entering or leaving ~~{of the}~~ **[a] pico[-]cell area[,]** with the corresponding consequences with respect to the subscriber and user of the mobile radio network.

~~{Patent claims~~

~~1. Method for operating mobile telecommunication terminals in a public, cellular mobile radio network comprising at least one base transmitting-receiving station and one mobile station, particularly a mobile telephone, characterized in that the mobile station logs off from the respective base transmitting-receiving station as a subscriber in the mobile radio network when a first message of a locally emitting transmitter of small capacity is received, whereby, subsequent to the network logoff, the mobile station, with regard to the radio cell, is completely deactivated and stopped or passes over into an inactive call-blocked modus on the part of the network and/or into a modus that is blocked for outgoing calls and whereby it is reactivated when a second message is received from the locally emitting transmitter.~~

~~2. Method according to claim 1, characterized in that~~

~~the mobile station, when the transmission range of the locally emitting transmitter is left, is manually activated and is logged into the network given a lack of the second message.~~

~~3. Method according to claim 1, characterized in that the respective mobile station automatically passes over into the active modus and accepts the standby operation when the second message is not received over a prescribable time interval.~~

~~4. Method according to one of the previous claims, characterized in that the reception of the first and/or second message is optically and/or acoustically signalized, whereby the message content and or message parameter can be displayed.~~

~~5. Device for operating mobile telecommunication terminals in a public, cellular mobile radio network comprising at least one base transmitting-receiving station and one mobile station, particularly a mobile station (MT), whereby the mobile station (MT) comprises a transmitter-receiver assembly, a micro controller, a current supply unit, as well as input assemblies and output assemblies, characterized in that the transmitter-receiver assembly additionally comprises a pico cell radio device (FS) for receiving and evaluating specified messages (C), whereby the pico cell radio~~

~~device (FS) leads the specified messages (C) onto the micro controller in order to initiate it to transmit a network logoff signal via the transmitter-receiver assembly; and whereby the micro controller initiates the deactivation of the part of the transmitter-receiver assembly that is required for communicating with the base station.~~

~~6. System for operating mobile telecommunication terminals in a public, cellular mobile radio network comprising at least one base transmitting-receiving station and one mobile station, particularly a mobile telephone; characterized in that a pico-cell transmitter fixed station (FS) is arranged in access areas or at locations where, with regard to the radio cell, active sending mobile stations or the use of such mobile stations is inadmissible or undesired, so that specified messages are emitted in order to automatically deactivate and reactivate the mobile stations situated in the transmission range.~~

~~7. System according to claim 6; characterized in that the pico-cell transmitter fixed station (FS) of small capacity is arranged in the area of openings for persons or road of [sic] airplanes.~~

~~8. System according to claim 6 or 7; characterized in that a present pico-cell radio system is used as pico-cell transmitter fixed station and for the corresponding radio device in the mobile telephone.~~

~~9. System according to claim 8;~~

~~characterized in that~~

~~the pico cell radio system is a DECT standard system or a blue-tooth standard system.~~

~~10. System according to claim 9;~~

~~characterized in that~~

~~the mobile telephone is a dual mode mobile telephone, particularly a DECT-GSM mobile telephone.~~

Abstract

~~Method, device and system for operating mobile telecommunication terminals in a public, cellular mobile radio network~~

~~The invention relates to a solution for operating mobile telecommunication terminals in a public, cellular mobile radio network comprising at least one base transmitting-receiving station and one mobile station, whereby it is assured that the mobile station logs off from the respective base transmitting-receiving station and goes into a nonoperating state when a first message is received from a locally emitting transmitter of a small capacity, i.e., of a pico-cell transmitter and whereby it can be reactivated when a second message is received from the pico-cell transmitter, so that a corresponding communication is provided over the network.~~

~~Figure 2}~~ [Although modifications and changes may be suggested by those skilled in the art to which the present invention pertains, it is the intention of the inventors to embody with the patent warranted hereon all changes and modifications that may reasonably and properly come under the scope of their contribution to the art.]